Amendments to the Specification:

Please replace the paragraph on page 10, lines 7-17, with the following amended paragraph.

Figure 3 illustrates an implementation of the encoder 28 of an embodiment of the present invention, here an eight-state, space-time coder. Here, data to be encoded is provided to the encoder on the lines 24. The encoder includes three delay elements 76-1, 76-2, and 76-3, arranged in a series connection. The left-most (as shown) and the center (as shown) delay elements 76-1 and 76-2 are separated by a summing element 78. The summing element 78 is coupled to receive input values taken from a top-most (as shown) of the lines 24 and the left-most (as shown) delay element 76-1. The first summed value is provided between the delay elements 76-2 and 76-3. The summing element is additionally coupled to receive values generated on the lines 24 and also a branch taken from the recursive path 36. Coded symbol values are formed on the lines v ~~42 and 44~~ which together define the systematic, recursive space-time code generated by the encoder.

Please replace the paragraph on page 11, lines 38, with the following amended paragraph:

Three summing elements 78-1, 78-2, and 78-3, are positioned between successive ones of the delay elements. The delay elements 78-1 and 78-2 are further coupled to separate ones of the lines 24, and the summing element 78-2 is further coupled to the recursive path 36. And, the summing element 78-3 is coupled to several of the lines 24. The systematic, recursive space-time code formed by the encoder is provided on the lines v ~~42 and 44~~. Here, four lines v ~~42~~ are utilized to permit the generation of a sixteen-state code.

Please replace the paragraph beginning on page 15, line 12, with the following amended paragraph:

Consider the $L = 2$ case and assume that each transmit antenna uses 4PSK modulation; other M-PSK constellations can be accommodated using similar steps. A trellis coded modulation scheme with q states, where each trellis transition covers two symbols, can be obtained naturally by constructing a super-constellation whose points

are 2 x 2 matrices chosen so as to facilitate the existence of the structure discussed above; the matrix elements are from 4PSK constellation and there must be enough super-constellation points to allow the transmission of 2 bits per channel use. Thirty-two matrices C_i defines the 4PSK symbols to be sent over the $L = 2$ transmit antennae, during two consecutive symbol epochs. <u>Figure 5 illustrates a table listing thirty-two matrices having entries representative of points of a 4-PSK constellation.</u> The squared Euclidean distance between C_i and C_j is $tr((C_i\text{-}C_j)+((C_i\text{-}C_j)$. The super-constellation will be partitioned in the usual way, producing cosets as a function of q. The elements within one coset are distinguished by means of uncoded bits.